

REMARKS

Claims 1 to 42, as amended, appear in this application for the Examiner's review and consideration. Claims 27 to 42 are withdrawn from consideration, as being drawn to a non-elected invention. The amended claims are directed to a preferred embodiment of the invention. The amendments to the claims are fully supported by the specification and claims as originally filed. In particular, support for the recitation that the sample chamber containing the first and second electrodes is a single compartment is provided in the figures and those portions of the specification describing the figures. Therefore, there is no issue of new matter.

Claims 1 to 7, 9, 10, 13, 15 to 17, 19 to 22 and 24 stand rejected under 35 U.S.C. §102(b), as being anticipated by U.S. patent No. 6,214,191 to Wiktorowicz et al. (Wiktorowicz) for the reasons set forth on pages 2 to 5 of the Office Action; claims 8, 11, 12, 14, 18, 23, 25 and 26 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Wiktorowicz in view of U.S. Patent No. 4,959,133 to Adcock for the reasons set forth on pages 5 and 6 of the Office Action; and claims 11, 12, 25 and 26 stand rejected under 35 U.S.C. §103(a), as being obvious over Wiktorowicz in view of U.S. Patent No. 6,162,602 to Gautsch for the reasons set forth on page 6 of the Office Action.

In response, Applicants submit that the presently claimed invention, as recited in claim 1, is directed to an integrated microfluidic device. The device comprises a sample chamber and a fluid reservoir connected by a microfluidic channel. The microfluidic channel comprises an inlet and an outlet. The sample chamber is positioned at the inlet of the microfluidic channel, and comprises a first electrode and a second electrode capable of generating a first electric field in the sample chamber. The sample chamber containing the first and second electrodes is a single compartment. The first electric field is configured to transfer charged molecules in the sample chamber to the inlet of the microfluidic channel, and the fluid reservoir is positioned at the outlet of the microfluidic channel, and comprises a third electrode capable of generating a second electric field with at least the second electrode.

Independent claim 5 differs from claim 1 in that claim 5 recites that the sample chamber comprises a section of matrix material comprising charged molecules, which are electro-eluted from the matrix material by the first electric field.

Independent claim 15 differs from claim 1 in that claim 15 recites that the sample chamber is positioned at the outlet of the microfluidic channel.

Independent claim 20 differs from claim 15 in that claim 20 recites that the sample chamber comprises a section of matrix material, and the first electric field is configured to

transfer charged molecules from the outlet of the microfluidic channel into the section of matrix material.

In contrast to the presently claimed invention, Wiktorowicz discloses an electrophoresis apparatus and method in which each electrode is in a separate chamber. Wiktorowicz does not disclose or suggest a device in which a sample chamber containing first and second electrodes is a single compartment, as presently claimed. Therefore, Wiktorowicz does not disclose or suggest the presently claimed invention.

Adcock does nothing to overcome the deficiencies of Wiktorowicz. Adcock discloses a means and a method for electroblotting or electroelution, where a field is inverted repeatedly over time, until an electrophoretically separated DNA, RNA, or protein is forced out of a gel and to an appropriate receiver by the net field so produced. Adcock does not disclose or suggest a device in which a sample chamber containing first and second electrodes is a single compartment, as presently claimed. Even if the disclosure of Adcock was combined with that of Wiktorowicz, the resulting combinations would not provide the presently claimed invention. Instead, the combination would provide a device in which each electrode was in a separate chamber, and an inverted field was applied to the electrode in each of the chambers. Therefore, Wiktorowicz and Adcock, whether taken alone or in combination do not disclose or suggest the presently claimed invention.

Gautsch does nothing to overcome the deficiencies of Wiktorowicz. Gautsch discloses an apparatus and method for nucleic acid base sequencing in which gel electrophoresis employing agarose or polyacrylamide gels is used to separate fragments. Gautsch does not disclose or suggest a device in which a sample chamber containing first and second electrodes is a single compartment, as presently claimed. Even if the disclosure of Gautsch was combined with that of Wiktorowicz, the resulting combination would not provide the presently claimed invention. Instead, the combination would provide a device in which each electrode was in a separate chamber, and an agarose or polyacrylamide gel was in one of the chambers. Therefore, Wiktorowicz and Gautsch, whether taken alone or in combination do not disclose or suggest the presently claimed invention.

Therefore, as Wiktorowicz, Adcock, and Gautsch, whether taken alone or in combination, do not disclose or suggest the present invention, the present claims are not anticipated by or obvious over those references. Accordingly, it is respectfully requested that the examiner withdraw the rejections of claims 1 to 7, 9, 10, 13, 15 to 17, 19 to 22 and 24 under 35 U.S.C. §102(b) over Wiktorowicz, claims 8, 11, 12, 14, 18, 23, 25 and 26 under 35

U.S.C. §103(a) over Wiktorowicz in view of Adcock, and claims 11, 12, 25 and 26 under 35
U.S.C. §103(a) over Wiktorowicz in view Gautsch.

Applicants thus submit that the entire application is now in condition for allowance, an early notice of which would be appreciated. Should the Examiner not agree with Applicants' position, a personal or telephonic interview is respectfully requested to discuss any remaining issues prior to the issuance of a further Office Action, and to expedite the allowance of the application.

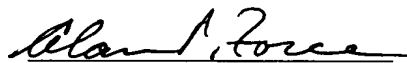
A separate Petition for Extension of Time is submitted herewith. Should any other fees be due, however, please charge such fees to Deposit Account No. 11-0600.

Respectfully submitted,

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